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THOMAS AITKEN DOLLAR.

Mr. Dollar, whose death, on September 26th, we are grieved to announce, was born in Scotland 76 years ago. He studied at Dick's College, Edinburgh, and took the Highland and Agricultural Society's veterinary certificate in 1851. He was a brilliant student, and earned the life-long friendship of Prof. Dick, for whom he entertained the highest respect and admiration. Dick and Dollar were both strong men—men of character, and to their conjunction is due the course taken by many phases of veterinary evolution.

With his Scotch diploma Mr. Dollar went as assistant to Mr. Simpson, of Manchester, and soon had the opportunity of showing his metal. Very shortly after his arrival in Manchester Mr. Simpson determined to take a holiday and leave his new and very youthful assistant to manage an extensive practice and a large shoeing business. The farriers thought the opportunity a good one for a strike, and arranged their plans to "go out" on the Saturday, after wages had been paid. But the Scotch assistant had heard something, and arranged for six farriers to come from Glasgow and start work on Monday morning. The additional three men required were found locally, and so the shop was not stopped a day, and the old hands were defeated.

Mr. Dollar's coming to London was with the intention of entering the Army, but in those days there was war between the men holding the Highland and Agricultural Certificate and those holding the R.C.V.S. Diploma. The Chief Veterinary Surgeon to the Army was a London man, and, if tradition be true, behaved in anything but an impartial manner to Mr. Dollar. Some influence was brought to bear upon the Minister of War, but the delay and unfairness so sickened Mr. Dollar that he relinquished his purpose, and commenced in London as a private practitioner. The episode passed, but never afterwards was a Scotch certificate rejected as a qualification for the Army until the time arrived for mutual agreement.

Mr. Dollar's progress as a London practitioner was at first slow, and was for years an uphill fight against prejudice and misrepresentation. Dollar, when opposed, was essentially combative, and the London practitioners, especially the professors at Camden Town, opposed him heartily. The turning point in this fight was a quarrel with Professor Varnell, who was backed by Field and other leading practitioners, over a supposed case of farcy. The case was brought into the Magistrates Court and adjourned for a month. At the second hearing Dollar produced the horse apparently quite sound and with certificates from his opponents to the effect that they had examined the horse and found no farcy. Of course their examinations were made without knowledge that it was the same horse. After this Mr. Dollar's practice rapidly increased, and at his death was probably the largest in London.

His success was not merely due to indomitable perseverance. It is true he possessed in a high degree all those characteristics which make a business man, but he also had keen powers of observation and a scientific training which enabled him to apply his knowledge to his cases. His diagnostic power was great, and his common sense and experience enabled him to give his clients a sound practical prognosis, which is perhaps the most important point in practice. We have known intimately many successful practitioners, but none who so much impressed their clients with his reliability as Mr. Dollar. Very seldom did he lose a client who once knew him. In Courts of Law this same impressiveness was notable. Judge and jury seemed to accept his evidence without reserve, and the present writer, when he appeared on the opposite side, has often wondered how Mr. Dollar's evidence should have won the case so conclusively.

Many men have apparently directed the progress of the veterinary profession with much greater effect than Mr. Dollar, but he has been a real power in our evolution. In the middle of the sixties of last century the veterinary profession woke up to the fact that the Council of the R.C.V.S. at Red Lion Square was being run by a small clique guided and controlled by the Camden Town School. Leading practitioners from the large provincial towns began to interest themselves in veterinary politics, and gradually the members of Council numbered many men whose views were wide enough to see that progress must depend upon unity, and that our advance needed the co-operation of all practitioners irrespective of what school they came from. The great difficulty was to unite the Scotch and English graduates. The Body Corporate made a step forward when they agreed to invite holders of the Highland and Agricultural Society's certificate to submit to examination and enter the R.C.V.S. But to the more enthusiastic of the certificate holders, and especially to those who prided themselves on being Dick's students, the examination enforced by the R.C.V.S. was looked upon as a reflection on the status of their examination. They argued—"our studies were as thorough as yours, and our examination was as honest and at as high a standard as yours. We shall not join you until this is recognised." Many of Dick's students for the sake of unity took the examination and

entered the R.C.V.S.; others stood out, and among them Tom Dollar.

Until this difference was arranged there could be no Veterinary Surgeons Act. Probably the Union ultimately arrived at would never have been consummated had not Sir Frederick FitzWygram been interested in veterinary science and practice. Sir Frederick became a member of Council in 1872. He was holder of a Highland and Agricultural Society's Certificate, and his influence with both sides was tactfully employed to bring about peace between Dick's and Red Lion Square. Mr. Dollar was always a friend of Sir F. FitzWygram, and the latter consulted him at every turn of events. The influence of Dollar on FitzWygram must have been good, or we should not have obtained the Charter of 1879 or the Act of 1881. Dollar fought for the rights of his *alma mater*, and when the equality of the diploma with his Certificate was acknowledged he acquiesced in the union and joined the R.C.V.S. Next year, 1880, such was the good feeling prevalent that Mr. Dollar was elected a Vice-President of the Royal College of Veterinary Surgeons.

For many years he acted on the Board of Examiners appointed by the Highland and Agricultural Society and he never lost interest in the Dick School.

Sir Frederick FitzWygram became President of the R.C.V.S. in 1875 and retained that position till 1879. During those years two Charters were obtained and the ground cleared for the Act of 1881. The Charter of 1879 contains this—"And Whereas terms of arrangement have been agreed to between the said Society and the said College, whereby the said Society have bound themselves not to hold any further examinations in Veterinary Science and Medicine or to grant any further certificates of of qualification to practice the Veterinary Art . . . and the said College have bound themselves, so far as they lawfully could, to endeavour to obtain powers to admit as Members of the College all persons holding certificates of qualification to practise, etc., etc." The Charter granted the powers, and so ceased the jealousies and differences between the holders of the H. and A. Society's certificate and those who possessed the diploma of the R.C.V.S. Probably no other than FitzWygram could have brought about this union. Mr. Dollar's opposition was based upon the refusal of the College to accept the Certificate on equal terms with the Diploma and he won his point when the certificate holders were admitted by mere payment of a registration fee. In 1880 Mr. Dollar became a Member of the R.C.V.S. and has ever since taken an active interest in the progress of the united profession.

For many years Mr. Dollar has conducted one of the largest practices in the Kingdom. Since his two sons joined him the premises in Bond Street have been rebuilt, and are second to none in their provision of every up-to-date requirement for a first class veterinary practice.

Mr. Dollar was a strong man mentally and physically, with a rather stern sense of duty. Had he lived in the days of the Covenanters he would have faced persecution to the death in defence of his faith and principles. Those who knew him slightly might have recognised only his unbending firmness. Those who were permitted to see deeper found a kindly heart and a truly generous nature. There was a time, in the early days of commencing practice, when financial difficulties had to be faced. On one such time a client, noticing that he was looking worried, asked if he was ill. On being assured that his health was good, the diagnosis was made "then its your pocket that is wrong." Without another word on either side the client went into his house, brought out a bundle of notes and said, "will this help you over the trouble," and in reply to an offer of a written acknowledgment, he added "No, I want no writing from you, pay it me back when you can." Years afterwards this old client, who had been the victim of a series of misfortunes and lost sight of, entered Dollar's office on a Saturday to beg a shilling or two. He received a sovereign and an order to call again every Saturday, which he did for one or two years before death removed him.

Mr. Dollar leaves a wife and family to mourn his loss. The two sons have been partners in the business for years and are well known practitioners. One early made his mark on the profession, and the other is only less prominent because his retiring disposition overshadows his many intellectual gifts.

ANÆSTHESIA—GENERAL AND LOCAL.

The story of anæsthesia dates back to the Garden of Eden. We are told that "God caused a deep sleep to fall upon Adam and he slept; and he took one of his ribs and closed up the flesh instead thereof." In this way his help-meet Eve was formed. Homer writes of Helen of Troy dealing out a potion pregnant with sleep. This potion was supposed to be a decoction of Indian hemp.

The three main general anæsthetics of modern days are Nitrous Oxide discovered by Sir Humphrey Davy in 1800; Sulphuric Ether by Faraday in 1818; and Chloroform first employed by Simpson in 1847.

Notwithstanding the benefits and advantages conferred on operator and patient by the use of narcotics, it is strange that in its early day the introduction of chloroform as a pain annuller and reliever was met by opposition prolonged and bitter. Simpscn, the introducer and discoverer of the anæsthetic, was roundly rated by many of his contemporaries, who argued that the relief of pain, especially at child birth, was not in accordance with a Divine dispensation. Three of the earliest votaries of chloroform died insane, and their deaths were hastened by the contumely their claims brought on them. Yet now, what blessings obtain through its use. Parturition in the human field has lost much of its suffering and sorrow, and its science has almost reached the highest point. Surgery has progressed greatly, and successful results of operations have increased largely in numbers. Peaceful sleep has taken the place of shrieks, wails, groans, cringings, jumpings and yelps, and the surgeon's knife has lost much of its terror.

The anæsthesia produced by nitrous oxide is of short duration; hence it has been chiefly useful to dentists.

Sulphuric ether is preferred by some anæsthetists to chloroform, as it keeps up the strength of the circulation more than the latter. The former narcotic requires to be mixed with 20 to 30 per cent. of air: its administration does not usually proceed so quietly as that of chloroform, nor are its effects so deep and prolonged.

Chloroform is perhaps most generally used by human and animal surgeons. In the young its small irritating effect on the tender air passages tells in its favour. In operations rapidly to be performed and those conducted in an artificial light it should be used. Its vapour is not explosive like that of ether. It should be mixed during inhalation with, say, 40 per cent. of air.

There is a difference in the length of time required to produce narcosis in horses. Hackneys often go under quicker than cart horses; young animals than adults, whilst some patients take deeper respirations than others and consequently inhale more vapour and go to sleep sooner. There does not seem to be much danger in pushing the chloroform at first in horse patients, and the admission of even 40 per cent. of air need not be absolutely necessary.

Old horses, if kept under the anæsthetic long require special care, and it is wise to have some liquor ammon. fort and cold water ready in case of emergency. As a rule in from five minutes to quarter of an hour an adult horse is asleep. An affected limb may then be safely removed from the hobbles, and if necessary and the anæsthetist is competent it would even seem, from observations made on recumbent patients after operating, that all the limbs might be left free with perfect safety to the operator.

The general way that patients have been brought round after operating has been by sponging or bathing their heads with cold water, and occasionally where sleep has been prolonged the vapour of strong ammonia has been serviceable.

Cox's muzzle has been the one used, and the average amount of chloroform required to produce narcosis has been about four ounces. Big, strong, cart horses have taken more than hunters, cobs, or hackneys. When coming round a horse should be steadied on his feet for a time, but he recovers consciousness quickly, and apart from a little catarrh for a day or two and a smell of chloroform in his excreta, he is soon alright.

The dog and cat are good subjects for chloroform, but here the precaution as to the admission of air should be observed. Hobday's inhaler and a glass bell jar are suitable instruments for them.

The writer had a cat with a fish bone in her throat under chloroform for nearly half an hour, and a Persian feline for quarter of an hour in an ovariotomy. Both subjects came round quite satisfactorily but the ammonia vapour had to be used with the Persian once or twice.

The pig is a bad subject for general narcosis, as the heart is often diseased. Thirteen adult equines, 22 canines, and 5 felines have been operated on under chloroform without any fatalities. The veterinary surgeon by reason of the usual good constitution of his patients, ought to be even more assured in administering chloroform than the doctor.

As a *local anæsthetic*, ethyl chloride has been the pain reliever used by the writer. The spray has been the method of employment. The operations conducted have comprised removal of four fibromas and one osteoma in horses, two lipomas in bitches, a calcareous mammary tumour in a bitch, weighing two ounces, and an epulis in a dog weighing about 3 drachms. Ethyl chloride has also been used in two tracheotomies in cart horses.

Local anæsthesia is merciful, it is advantageous to the operator, especially where help is limited; it causes less resentment on the part of the subject, the operator can concentrate his attention more on his work and be more leisurely and less uncertain in his methods. No harm has resulted from using the spray to incised parts while operating if the application has not been too prolonged. It is rather surprising that veterinary surgeons in these hard times have not cultivated the cult of the local anæsthetic more than they have, especially with the humane and well-to-do client, and most men are humane nowadays. "Applying local anæsthetic and operating on so-and-so" will frequently bring forth more money than the plain "operating on etc." and both veterinary surgeon and client can produce strong arguments in favour of local anæsthesia. M.R.C.V.S.

ABSTRACTS FROM FOREIGN JOURNALS

Bucco-Sinusal Fistula in the Horse.

Leblanc (*Journal de Méd. Vét.*) records a case of a horse which presented a fistulous orifice on the left side of the face, in the region corresponding to the inferior maxillary sinus. A probe could easily be passed through this orifice into the sinus.

A fœtid liquid containing pieces of alimentary material flowed from the orifice; and the probe, when withdrawn, bore pieces of putrefied forage. A communication therefore evidently existed between the sinus and the mouth. The buccal cavity exhaled a fœtid odour, but an examination of the mouth revealed no trace of caries.

By repeated probing, Leblanc succeeded in making the probe penetrate into the mouth, and thus discovered the buccal orifice of the fistula. This proved to be between the internal aspect of the cheek and the external aspect of the dental arch, in the vicinity of the second and third molars.

Leblanc decided to open the sinus freely. He therefore made several openings with the trephine, and removed the bone intervening between these, thus making a large orifice. The cavity was found to be filled with very fœtid alimentary material which was removed with the curette; and the whole course of the fistulous tract was completely cleansed of foreign matter.

After careful syringing, the wound and the sinus were plugged with gauze and wadding, in order to prevent further contamination by alimentary material. The horse was afterwards treated by daily washing out of the sinus, with subsequent re-plugging.

The wound granulated and tended to become filled up; but, at the end of three weeks, the communication with the mouth had scarcely altered in the dimensions of its orifice, while the surface wound was inclined to close.

Leblanc now decided to fill the base of the sinus and occlude the buccal orifice with gutta-percha softened in warm water, in the hope of forming a permanent stopping. This was done with complete success.

The gutta-percha fulfilled its office very well. The horse took food without any difficulty; the mouth exhaled no more odour; and. the cutaneous wound gave no trouble beyond a slight oozing. A month later, the stopping had not moved, and the horse could be worked.

Other veterinarians have obtained analogous results with gutta-percha in closing fistulas arising from the operation of repulsion of molar teeth. Leblanc highly commends this procedure for its elegance and efficacy.—*Annales de Méd. Vét.*

W.R.C.

CAPE OF GOOD HOPE VETERINARY MEDICAL ASSOCIATION.

The third annual general meeting was held at the Central Hotel, Cape Town, on Wednesday, April 28th, at 8 p.m. The following members were present: Mr. J. D. Borthwick, President, in the chair; Messrs. R. Dixon, J. Forrest, R. Pain, J. W. Crowhurst, Hon. Sec. and Treasurer.

The SECRETARY having read the minutes of the second annual general meeting held February 28th, 1908, then presented the report of the Council and the Treasurer's balance sheet, which were adopted.

REPORT OF THE COUNCIL FOR 1908.

Your Council lay before you their report for 1908.

The second annual general meeting was held on February 27th, and during the year two Council meetings were held.

No further steps were taken as regards the proposed Veterinary Surgeons Bill, as your Council considered it was hopeless to attempt to get it through Parliament, especially as it was the first session of a new Parliament, and they thought it would be wiser to husband our funds until there appears to be a fair prospect of attaining the object for which the Society mainly was formed. Should union of the South African States take place, then your Council are of opinion that it would be advisable to combine with the Transvaal Society, and Natal (if there be one) with the idea of effecting the object we have so long had in view.

A letter was received from an applicant who wished to become a member, but as he was not a M.R.C.V.S. a reply was sent that according to the rules of the Society, the application could not be entertained. Previous to this application a paragraph appeared under "Kennel Notes" in a newspaper stating that the same gentlemen was hon. veterinary surgeon to the Society for the Prevention of Cruelty to animals. As his qualifications were somewhat dubious, your Secretary wrote to the Society pointing out that the gentleman was not a M.R.C.V.S., and received a reply saying that there was no justification for the statement as no such appointment had been made.

Your Council trusts that those members still in arrear with their subscriptions will forward them to the Hon. Treasurer with as little delay as possible as when the time arrives to proceed with the proposed Veterinary Surgeons Bill, the funds will be urgently needed for the purpose.

Your Council also hopes that the present members will still continue to give their support to the Society, and that they will endeavour to enlist as members those veterinary surgeons who have not yet joined.

The interests of the veterinary profession will be as carefully watched in the future as they have been in the past by your Council, and the support of every member of the profession is needed, more especially as we are so few in numbers, and so widely scattered.

The Hon. Treasurer submitted the balance sheet.

CASH STATEMENT, JAN. 1, 1908, TO APRIL 30, 1909.

Receipts.	£	s.	d.
Balance brought forward—			
Cash in savings bank	99	5	10
Cash in hand		2	8
By Subscriptions—			
1908—Subscriptions, 12 at £2 2s. ...	25	4	0
1907 „ arrears, 3 at £2 2s.	6	6	0
Interest to June 30th, 1908 ...	3	17	4
	133	15	10

Expenditure.	£	s.	d.
To Typing Annual Report, minutes and circulars	2	14	0
Postage and Stationery	1	0	10
Bank Commission on cheques ...		3	0
Balance in Savings Bank ...	129	18	0
	133	15	10

Examined and certified correct,
J. FORREST.

Mr. PAINE then proposed, and Mr. Forrest seconded, "That Officers of the Army Veterinary Corps shall be entitled to election as members of the Society, on payment of the annual subscription, without payment of the entrance fee." Carried.

Mr. DIXON proposed, and Mr. Paine seconded, "That no subscriptions be called up for the year 1909." Carried.

Mr. Goundry's letter on the following subjects was considered:

What is the definite position of the M.R.C.V.S. *re* the Dairies, Cowsheds, and Milkshops Act of this Colony?

What is their position with regard to meat inspection?

After some discussion, the Hon. Sec. was instrncted to draw Mr. Goundry's attention to Clause 14 C, and Clause 12 D, in the regulations published in the Government Gazette, Feb. 6, 1906, and which were framed under the provisions of Section 9 of the Public Health Amendment Act, 1897. Clause 14 C, is as follows:—

"The Colonial veterinary surgeon may by himsolf, or by any competent officer duly authorised thereto by him, enter at any time upon any premises in which any cow for the production of milk for sale is kept, or housed or milked, and examine any cow or animal therein, and, should there be any reason to believe or suspect that any such cow or animal is suffering from any contagious or infectious disease, liable to render milk produced by such cow or animal unwholesome or injurious for human consumption, may carry out such investigations as he may deem necessary to determine whether such cow or animal is suffering from such diseases."

As regards meat inspection, that there is no provision made as regards a veterinary surgeon acting, except that a Magistrate might call upon a veterinary surgeon to give evidence.

The SECRETARY was instructed to write to Mr. Simpson, Vryburg, in the hope that he might become a member.

The CHAIRMAN next declared the result of the voting for the election of officers for the current year, viz.:

President: Mr. J. D. Borthwick, M.R.C.V.S.
Vice-President: Mr. R. Dixon, M.R.C.V.S.
Hon. Sec. & Treas: Mr. J. W. Crowhurst, F.R.C.V.S.
Committee: Messrs. R. Paine, F.R.C.V.S, J. Forrest, M.R.C.V.S., A. Goodall, M.R.C.V.S., G. W. Freer, M.R.C.V.S., J. Buck, M.R.C.V.S., and W. Robertson, M.R.C.V.S.

Mr. PAINE proposed, and Mr. Forrest seconded, a vote of thanks to the President for his services during the past year.—Carried.

Mr. DIXON then proposed a vote of thanks to the Hon. Sec. and Treasurer. This was seconded by Mr. Borthwick and carried.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at the Grand Hotel, Manchester, on September 2, the President, A. Munro, Esq., Altrincham, in the chair. The attendance included Messrs. Eaton-Jones, Edwards, Ingram, Mattinson, Carter, Woods, Whitehead, Wilson, Faulkner, Brittlebank, Wolstenholme, Taylor, Stent, Ferguson, Minor, Sumner, G. H. Locke, Price, Prof. Williams, Ackroyd, and Lloyd. Visitor: Mr. Snowball, M.R.C.V.S., Dunedin New Zealand.

Apologies for absence were received from Messrs. Hughes, A. Lawson, Darwell, McKinna, Packman, Holburn, and S. Locke.

The minutes of the last meeting were taken as read on the proposition of Mr. Wolstenholme, seconded by Mr. Taylor.

The SECRETARY reported the death of a member, Mr. Hodgkins, Hanley, and that he had sent a letter of condolence to the relatives. A reply of thanks was submitted.

SUBSCRIPTIONS.

Mr. G. H. LOCKE read an extract from the proceedings of the Council of 3rd May, 1909, to the effect that they recommend the following alterations to be made in the rules, viz., to add another rule to follow Rule 2, to read—"No newly elected member shall participate in the benefits of the Society or receive an announcement of the meetings until his entrance fee and first year's subscription have been paid," also "to delete from Rule 15 the words from 'expected' to 'and' (line three) also the words 'of the above' (line five)."

In the absence of Mr. S. Locke, who introduced the subject, Mr. G. H. Locke proposed that this recommendation be accepted.—Mr. Carter seconded, and after the rules, as revised, had been read, the proposal was carried.

Mr. G. H. LOCKE, again on behalf of Mr. S. Locke, gave notice of motion for the next meeting in regard to the alterations.

CORRESPONDENCE.

The following letter dated Sept. 1, from Mr. S. Locke was read:—

"Dear Sir,—I regret very much my inability to attend the quarterly meeting of the Association tomorrow as I shall be away from home. It was my intention to be present and take the first opportunity after my election as President of the Royal College of Veterinary Surgeons to thank personally the members of our Association for the generous support they have given me for so many years in nominating and supporting my election as Member of Council, and bringing same to such a successful issue. The honour I hold is in a great measure due to your kindness, and I take this opportunity of offering you my most grateful thanks. I appreciate the honour very much, and will endeavour to uphold the dignity of the office and keep up the prestige of Lancashire and the Association of which I have the honour of being a member.—Yours very truly,

SAM LOCKE.

To A. Munro, Esq.,
President, Lancashire V.M.A.

On the proposal of Mr. Carter, seconded by Mr. Brittlebank, it was resolved that this letter be entered on the minutes.

A letter from the South Durham and North Yorkshire V.M.A. under date of June 29th, in reference to the payment of fees to veterinary surgeons for attendance at race meetings was read. After a short discussion in which it appeared to be the feeling that a veterinary surgeon at race meetings could charge the owners of horses for services rendered, it was resolved that no action be taken in the matter, on the proposition of Mr. Eaton-Jones, seconded by Mr. G. H. Locke.

The Secretary to the Central V.M.A. had forwarded on June 21st a resolution passed by that Association in regard to the Milk and Dairies Bill suggesting certain amendments.

Mr. WOLSTENHOLME proposed, and Mr. G. H. Locke seconded, that pending further progress of the Bill, the consideration of the letter be deferred.

A communication in regard to the facilities for travelling to Holland for the International Congress was read. Mr. Locke pointed out that their Council had already decided to obtain one ticket of membership to the Congress, and he proposed that Mr. Stent, who was going, should have the ticket on behalf of the Association. Mr. Wolstenholme seconded.

Mr. FAULKNER presumed that Mr. Stent would place before them a copy of the proceedings of the Conference.

Mr. STENT replied in the affirmative, and thanked them for appointing him as delegate.

CONFERENCE AT HARROGATE.

Messrs. J. S. LLOYD and G. H. LOCKE, delegates.

A conference of representatives from the Veterinary Medical Societies was held in the George Hotel, Harrogate, on Tuesday, July 6th, 1909. Mr. G. Bowman, Leeds, was elected to the chair.

Some days prior to the meeting, Mr. A. Gofton, Hon. Sec., to the movement, sent each delegate a copy of a draft scheme.

It was thought at the meeting that the scheme was too long to go through in detail and the Chairman, therefore, called upon Dr. Bradley to give a general outline. After doing this Dr. Bradley moved the following resolution:

"That this conference, approving of the principle of amalgamation, take steps by which a scheme may be formulated and submitted to the various societies for their consideration."

The motion was formally seconded by Mr. Gofton, and an animated discussion followed. Messrs. Gooch, Roberts, Simpson, Sampson, Bowes, Macqueen, Hunting, Lloyd, Locke, Garnett, Howard, Banham, Villar, Spencer, and others took part.

From the first the desirability of combined action by Societies and the undoubted advantages was fully admitted. Equally on all sides came protests against interfering with the title and management of any existing Society. It was recognised that all members of the

veterinary profession should combine to fight for their professional existence and it was thought that one Central Society could do much to encourage scientific and research work. One delegate asked what was proposed with regard to defence and benevolent societies, but any proposal to deal with these was not included in Dr. Bradley's scheme.

One matter mentioned by several speakers was that of payment of subscriptions, it being generally understood that the subscription of one guinea should be inclusive.

Mr. Howard mentioned that the veterinary societies in Ireland were practically amalgamated now, that they had elected a small working committee to represent them, and to approach the Local Government Board and other bodies when matters concerning the veterinary profession came up for consideration.

Dr. Bradley's motion was then put to the meeting and carried unanimously, and it was afterwards decided that a committee consisting of the President and Secretary of each Veterinary Association be formed to put the motion into effect.

When this Committee have completed their labours it is intended that any scheme decided upon should be put before the various Societies for their consideration.

Public Health Congress at Leeds.

Mr. Munro reported having attended this Congress. The principal question in their section was that of compensation for tuberculous animals. In his opinion insufficient time was allowed for discussion of the various papers.

Mr. Stent, who also attended, thought the papers overlapped too much, and there were too many for proper discussion in the time allotted.

Mr. Taylor moved, and Mr. Brittlebank seconded, a vote of thanks to the delegates, and that their expenses be paid by the Association. This was carried.

Tuberculosis Order, 1909. Milk and Dairies Bill.

A discussion was opened by Mr. Brittlebank in the absence of Mr. Holburn, who notified at the last meeting his inability to be present.

Regarding the Milk Bill, he said he never believed it would come into force, and as it had been shelved for the present it would be waste of time to discuss it.

The Tuberculosis Order provides, in the first instance, for the giving of notice of diseases of two descriptions, first, "any cow which is, or appears to be, suffering from tuberculosis of the udder, indurated udder, or other chronic disease of the udder," or secondly, "any bovine animal which is, or appears to be, emaciated from tuberculosis." Notice is to be given to a constable of the police force for the area in which the animal is, or to an Inspector of the Local Authority.

It appeared to him, as one having to do with diseases of the udder, that the first clause would be somewhat difficult to carry out, especially would it be difficult to compel notification of cases of indurated udder. If you take the term induration of the udder in its broad sense you will find such indurated udders in every herd examined, but it would be unnecessary in many of the cases to ask for notification.

The second section appears to be merely asking for notification of "wasters," and that again will be a matter of some difficulty, not merely in defining what is a waster, but at what stage the animal becomes a waster.

Section 3 dealing with the inspection and examination of udders is largely a question of compensation.

The fourth section states that when the Local Authority are satisfied with the report of the inspector that there is in their district a cow suffering from tuberculosis of the udder, they shall give written notice to the Board of Agriculture and cause the animal to be slaughtered. If the owner or any person in his behalf objects to such slaughter, then the authority have to notify the Board for their special authority. This section also deals with the value of the cow.

The fifth section has to do with valuation for compensation. It will be noticed that all the costs of valuation as well as compensation fall upon the Local Authority. The method of ascertaining the value of an animal as set forth in Sub-sections 2 and 3 of Section 5 appear clear enough, and what might be expected.

Post-mortem examinations of slaughtered animals are dealt with in Section 6.

Compensation (Section 7) follows, of course, on the certificate of the veterinary inspector. The method of computing compensation is here set forth together with the conditions which state what is to be included as advanced tuberculosis.

Section 8 dealing with the precautions to be adopted with respect to milk etc. is a good one.

In his opinion, Section 9 respecting the detention and isolation of suspected animals, appears somewhat weak, inasmuch as Sub-section 1 would allow a loop-hole for an owner to say that it is not practicable to isolate the animal or keep it in his possession. He thought the words in the Milk Bill were "as far as may be convenient." The section on isolation in the Milk Clauses has indirectly been of considerable help in compelling isolation, which, being impracticable in many cases, has resulted in the immediate slaughter of the animal. Of course the weakness is not so great when compulsory slaughter is provided for.

One of the most important Sections is that in reference to suspected animals in markets, fairs, and sales, which would appear to do away with some misconception as to compensation. An animal suffering from tuberculosis of the udder, or emaciated from tuberculosis, must be removed on a request from the veterinary inspector, either to the place from which it was brought, or, if the owner desires, to any other suitable premises which have to be specified in the notice given by the veterinary surgeon. If the premises to which the animal is to be removed are outside the district in which the market is situated then a copy of the notice served must be sent to the local authority of the district in which the premises are situated where the animal is to be removed.

Another section (14) at the conclusion of the Order, stating four offences against the Act of 1894, is of interest.

Dealing with the Order generally, he heard that Mr. Holburn had expressed the opinion at Leeds that it was a preliminary step on the lines of the Glanders Orders, and that it was bound to be of very considerable value in its ultimate results. All animals which were either tuberculous in the udder, or had tuberculosis accompanied by emaciation, would be removed from the herds of the country. To merely deal with the animal which is in advanced emaciation is not sufficient. One should be able to pick out and, if necessary, compulsorily apply the tuberculin test to animals which are suffering from active tuberculosis producing infective discharges etc. such animals may not have arrived at the stage of advanced emaciation. This does not mean that the compulsory application of tuberculin to all animals is advocated as yet.

He was surprised to find no preventive measures advocated in the Order, or any instruction for the rearing of young stock. He expected to find very rigid conditions laid down for the housing, and particularly feeding of young animals, and also isolation from undoubtedly tuberculous parents. This is certainly provided for to some extent in the weak isolation clause, but quite inadequately.

The great objection raised by all the Local Authorities is that of the payment of compensation out of local funds. This will probably mean that the hands of the

local inspector will be more or less tied according to the amount which the Local Authority were prepared to spend.

DISCUSSION.

Mr. WOLSTENHOLME viewed this Order in the light that it was a beginning in the right direction. A perfect Order could not be obtained at first. No doubt some day there would be a national and universal inspection of dairy cattle, and cattle used for food purposes, in every part of the country.

Mr. EATON JONES called attention to the fact that there is no provision as to breeding of cattle, and nothing regarding the bull. He considered it to be necessary that the bull should be sound. If compounds were started by the Government and all reacting animals removed into them it would be a good start.

Mr. MINOR said in his experience it was extremely seldom he found a tuberculous calf. If the "wasters" and "screws" could be got rid of the position would be vastly improved.

Prof. WILLIAMS pointed out that it was evident that the Order had not been drafted by veterinary surgeons in country practice. He wished also to refer to the extreme vagueness as to induration of the udder. As had been pointed out by Mr. Brittlebank, there are far more cases of induration of the udder that are non-tubercular than of those that are tubercular, and it would be necessary for details of them to be added in an explanation Bill. In Russia compensation is given for an animal with contagious disease of any description, and the people are paid to report it as early as possible. They were thus encouraged to report. Not so in this country, because sufficient compensation was not given. Ever since tuberculin and mallein had been introduced for practical purposes he had advocated that the sale should be restricted to qualified veterinary surgeons and that on obtaining the material they should be bound to make a return as to the use of it. It was also most important that there should be standardisation of tuberculin. At present the quality was uncertain.

Mr. WOODS considered it to be not always easy to diagnose tuberculosis or tuberculosis of the udder, and he would like to see some clause in the Order that would enable the tuberculin test to be conclusive. After the test had been applied there should be no necessity for a post-mortem examination. He would prefer that all cases of indurated udder should be notified, and would have a bacteriological examination made of milk from any udder which the veterinary surgeon was unable to certify was not tuberculous. He objected to the arrangement by which one man may object to the veterinary inspector, and the local authority may appoint another man, and the Board of Agriculture still another. This would lead to quarrel and should be watched.

Mr. LLOYD to a large extent was in accord with the Order and considered it to be in advance as far as the early measures for getting rid of tubercular infection are concerned. In his opinion all cases of induration of the udder should be notified.

Mr. STENT pointed out that at the Harrogate Conference a resolution was passed to be sent to the Government to the effect that tuberculin should be standardised, and its manufacture in the hands of the Government. If their own Association did the same it might strengthen their case.

Mr. SNOWBALL, Dunedin, New Zealand, stated that in that country all animals suffering from tuberculosis are compensated for, either under the Stock Act or under the Abattoirs Act. The Government encourage all farmers to report disease in their stock to the stock inspector, who reports them to the veterinary surgeon. If the animal is found to be diseased the owner gets compensation equal to one-third of its value. Of course cattle there do not run up to such a large sum as here, but still that does not affect the principle. This encourages the farmer to report as early as possible and so get rid of the disease. There are many stockholders who periodically request the Government to test their herds. The cattle that react are isolated, and fattened, and eventually forwarded on to be killed, being branded so that when sent to the abattoir they are under strict supervision. The inspection is entirely in the hands of the Government and not under municipal control at all. Formerly the inspection was done by laymen, but now, thanks to the efforts of Mr. Gilruth, it is done under the Veterinary Department. Compensation is not paid for a cow over eight years old or under £3 in value.

Mr. BRITTLEBANK asked if there was State control of the sale of tuberculin.

Mr. SNOWBALL replied there was no legal State control, but it is only available through the Government head office. All the testing is done by the Government, and in his experience it is the most reliable test.

Mr. WOLSTENHOLME wished to know the maximum value for dairy cows.

Mr. SNOWBALL said dairy cows varied between six to nine or ten pounds. Fat cattle being ten to twelve pounds.

Mr. WOODS wished to know whether, provided a farmer applies to the Government for the tuberculin test, was he bound to do anything to the reacting cattle.

The reply was that isolation is enforced. If this is not done the Government are empowered to destroy them.

Mr. WOODS thought it to be a matter for congratulation. New Zealand appeared to be far in advance of this country in the matter.

Mr. BRITTLEBANK, in reply, desired to apologise for the crude manner in which he had opened the discussion on this Order. He said there appeared to be a feeling that he was opposed to the principle of the Order. As an ordinary veterinary surgeon he was delighted to see an attempt being made to deal with bovine tuberculosis. It was only as to the way in which the work should develop that he felt inclined to offer some criticism. He did not consider it necessary to give compensation for "wasters," and in his opinion it would be a waste of public money to do so.

As regards induration of the udder, this terms leads to much misconception as to what is induration and what is not, and he considered that if the words "indurated udder" were deleted and the clause made to read "suffering from tuberculosis of the udder, or other chronic disease of the udder" it would be quite comprehensive.

In reply to Mr. Woods, he would point out it would be impossible to avoid a post-mortem examination subsequent to a positive tuberculin re-action. It was absolutely essential that such an examination should be carefully made in order to assess compensation value.

The point regarding tuberculin was very important, and deserved the serious attention of the profession. Any recommendation made should be stringent, and should apply not only to the supply of tuberculin to veterinary surgeons and to the stardardisation of it, but should also apply to the Government manufacture. The Government should supply it free and the veterinary surgeon should be compelled to make a return of the results obtained.

He proposed the following resolution:—"That it is a matter of urgency that the supply of mallein and veterinary tuberculin should be restricted to veterinary surgeons, and, further, that these materials should be of standard strength and prepared in Government laboratories." This was seconded and carried.

Mr. BRITTLEBANK further suggested that copies of

this resolution be sent to the Royal College of Veterinary Surgeons and to the Board of Agriculture. This was agreed to.

Mr. WOLSTENHOLME submitted a specimen of the subcarpal region of a horse.

A vote of thanks to the President and to Mr. Brittlebank terminated the meeting.

SOME OBSERVATIONS ON THE USE OF DRUGS IN THE TREATMENT OF DISEASE.

By Prof. H. A. WOODRUFF, M.R.C.V.S.

Read before the Western Counties V.M.A., at Plymouth, August 19.

There have been from the very earliest times, before the causes of disease were known or the actions of drugs understood, innumerable systems of treatment. A very ancient one was "the doctrine of signatures," which taught among other things that the external shape or contour of a plant was suggestive of its use in medicine, and so we still have such plant names as liverwort and lungwort. Galen came later and enunciated his celebrated hypothesis, but it was as fantastic and unreasonable as the last. Then the doctrine "Contraria contraribus curantur" came into vogue, and of course still obtains to a considerable extent, *e.g.*, constipation is cured by a purgative, diarrhœa by an astringent. Still, no infallible system had been found, and Hahnemann next introduced the system of homœopathy or "similia similibus curantur," in which a diseased condition was opposed by an agent having a very similar action. He pointed out, for example, that diarrhœa is often cured by means of a purgative, and an inflammatory skin disease by an agent which itself causes inflammation.

But besides these distinct systems of drug treatment, superstition and tradition formerly played a part in determining the use of drngs, and many of these traditional remedies are in use in the country districts today. The old herbalist still exists in many parts, the country people venerate him and his potions, and his reputation sustains a hundred failures. Who has not heard that "bane and antidote grow side by side," and if one but knew the secret of Nature's pharmacy a cure would be found for each disease?

A curious example of superstitious or traditional use of a drug is mentioned by Prof. Cushney in his book on Pharmacology. Silver nitrate and oxide are still often given in cases of epilepsy in man. "This dates from the Arabs, and is said to have originated from the astrological medicine of the period, which taught that nervous diseases were especially affected by the phases of the moon which was associated with silver in their system (hence lunar caustic; lunacy). Clinical experience shows that silver is of no benefit in epilepsy, and, in fact, it is improbable that silver reaches the central nervous system in any other form than inert granules."

But let us now turn to the consideration of present-day practice.

RATIONAL TREATMENT.

At the present time rational treatment by means of drugs depends on two branches of knowledge, viz., *pathology*, or the knowledge of the cause and nature of disease and *pharmacology*—the knowledge of the action of drugs on the healthy animal. This latter science is now purely experimental; it is being added to every day by the direct observation of the effects and modes of action of various drugs, and since the animals we are called upon to treat as patients are of the same species as those used for experiment with the drugs, we as veterinary practitioners have the great advantage of a first-hand direct experimental knowledge, without having to allow for the differences in action which a difference of species (of animal) often accounts for.

In discussing the use of drugs, we mnst first consider the question in the light of modern knowledge of the causation of disease, and for this purpose we may make a broad distinction between specific infective diseases, and structural and functional diseases.

(i) Of the *Specific infective diseases*, the causes are organismal—the organisms being either vegetable or animal parasites, as bacteria or animal parasites, as trypanosomes and piroplasms, or the larger macroscopic parasites.

In speaking of bacterial diseases one may classify them into two groups (*a*) where the bacteria are actually in the blood or tissues generally, and (*b*) where the organisms are confined to some small local lesion, but are producing toxins which are absorbed and account for the symptoms produced. We may contrast septicæmia and anthrax on the one hand with tetanus on the other. In other words there are diseases in which destruction of tissues and cells is an important or chief factor, and others in which the effects of the toxins are chief factors, but there is no hard and fast distinction, and there are many gradations between the two groups.

In these cases drugs are needed (1) to render the tissues an unsuitable or even a fatal *habitat*, *i.e.*, impossible for bacteria to live in: or (2) to neutralise the toxins, either chemically, as we can do with mineral poisons—although it is usually impossible with toxins—or physiologically, as by potassium bromide in epilepsy; or (3) to sustain the animal's strength till the disease cycle is worked out, *i.e.*, until temporary or permanent immunity is secured.

Of blood parasites (hæmatozoa) one may say that drugs must render the blood an unsuitable medium for their growth. How this may be done is in many cases unknown, but we know that very slight chemical or physical, or physiological differences are often sufficient to inhibit. This is illustrated by the fact that trypanosomes and piroplasms, like bacteria, are *specific* to an animal and will not live in the blood stream of another animal, so that usually one cannot inoculate another, even allied species. As an example of this type of drug action we may cite quinine and the malarial parasite, and also atoxyl, and some of the trypanosomes.

In dealing with the larger parasites, the drugs employed must act by rendering the *habitat* unsuitable, or by actually poisoning the parasites themselves. Fortunately the majority of the parasites are on the surface of the body, or in cavities or tissues open to the surface, as in the intestines or lungs, but even then it is impossible to get the drug in contact sufficiently concentrated without harm to the tissues of the host.

(ii) *Structural and functional diseases.*—Of the structural diseases one may mention those (1) due to new growths, (2) the result of old organismal diseases, or (3) compensation for excessive use, wear, concussion or injury, In all these the treatment is generally surgical. Against new growths, drugs are, as a rule, useless, for the growths' requisites are so like those for the body cells that we cannot inhibit the one without destroying the other. In conditions the result of old organismal diseases, *e.g.*, valvular disease, we may, by the aid of drugs, bring about compensation; paralysis, if only partial, drugs may relieve; in destruction of lung tissue, drugs may help to overcome the effects of the deficiency. In all these, however, drugs are only palliatives; they simply alleviate symptoms and in veterinary practice, where fitness for work is usually required, drugs are in this class of case of little use.

In considering functional diseases we must remember that the body is a machine which may run either too

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Vice-President Royal College of Veterinary Surgeons, 1880.

fast, or too slowly, or irregularly, *i.e.*, without proper co-ordination, and this means that the body is in need of control. Such cases are often the result of the condition called atony, which shows itself *(a) generally*, after fatigue, overwork, reproduction, age, or disease; *(b) locally*, after local fatigue or disease, especially circulatory deficiency. In some cases atony results in a too sudden or too strong reaction, where the part is too sensitive or, we might almost say, hysterical; such cases may be due to local fatigue, irritation, poisoning, or weakness. The result is a spendthrift policy, as illustrated by diabetes, and other little understood conditions which are all hard to control by means of drugs: and one can only endeavour to recover the systemic control or general tone; hygiene is important, but drugs (so far) are of little use.

For health to be preserved there are two functions which *must* be kept active, viz., (1) nutrition, (2) excretion.

In the case of nutrition the kind and quality of the food is obviously of great importance. Few drugs are foods to any degree, though alcohol is one, as also are the oils. Drugs generally and at best only act as stimulants at the expense of later reaction or fatigue, *e.g.*, caffeine, strychnine, alcohol, etc.

In the case of excretion, this may be too active when it becomes a drain on the system, a loss, and wasteful, so that the expenditure is more than the income. On the other hand, if this function is inactive, there will result a clogging of machinery and a stoppage of the works.

The two processes going on together may be illustrated thus:—

Food.

Carbohydrates
Soluble proteids
Fat
Salts
Water
} + Oxygen

|

The Tissues.

|

Waste Products.

CO_2, Urea, Salts.

This metabolism may be too quick, or too slow, or inefficient, and in such cases drugs are useful to control the speed and alter the kind of reaction ("alteratives.")

Whilst this normal process is going on marauders may invade the medium in the form of bacteria or parasites, and then, as has been pointed out above, drugs are often of great value to render the medium uninhabitable to the marauders.

Action of Drugs.

And now having considered, from the point of view of the causation of disease, the possible benefits of drug treatment, we must inquire into the potentialities of the drugs themselves. With regard to any drug, we require to know (1) the speed and degree of its absorption into the system, (2) its selective affinity, if any, for any special tissue or organ, and (3) its effect, either when combined or during excretion.

Absorption varies very greatly. Drugs are most commonly given by the mouth, so that they have to run the gauntlet of the stomach and intestinal mucous membranes, and the effects of the gastric, pancreatic and intestinal juices and the bile have to be harmless before the drug can be absorbed and made useful.

If one takes a piece of *dead* animal membrane, whether intestine, stomach, or bladder, and uses this to separate two salt solutions of different concentration, osmosis will occur, the salt travelling through the membrane from the more concentrated to the lesser, until both are equal in salt content. Substances in solution may be divided into two classes: (1) *Crystalloids, e.g.*, the inorganic salts, which can osmose, and (2) *Colloids, e.g.*, organic substances of complex molecular structure such as gums and albumenoid solutions, which cannot pass through the membrane. Quite otherwise is it in the case of living mucous membrane, for here we find there is a selective physiological action, so that we have *osmosis with choice*, and not simply obedience to physical laws. As an example, one may quote the effect of a solution of strychnine in the horse's stomach, where if the pylorus and œsophagus are both tied, no absorption takes place, and hence no poisonous effects result.

Were the same drug placed in the intestine absorption would be rapid and the characteristic strychnine symptoms would be produced. Again, magnesium sulphate as a purgative is more efficient than many other soluble salts, because whilst the latter are readily absorbed, the former to taken up very slowly, and, while remaining in the intestine, exerts its osmotic force to draw water into the bowel.

Then, too, the digestive juices may help the action of a drug, *e.g.*, salol is rendered soluble only when it reaches the alkaline juices of the intestine. On the other hand they may hinder a drug's effects, *e.g.* drugs soluble in alkalies are made inert and precipitated in the acid medium of the stomach.

In using the salts of the heavy metals it must be remembered that they are absorbed only very slowly. Iron salts, for example, enter the system extremely slowly, and so to get the best effects *a course of* iron has to be given.

Lead salts again are examples of very slow absorption, and are therefore no use for internal hæmorrhage, say, of the lungs. Both iron and lead preparations are sometimes given for internal hæmorrhage, but for bleeding, anywhere except in the alimentary tract, they are useless because they fail to reach the part in time or in sufficient concentration. Of all the heavy metals, the salts of mercury and arsenic are the most readily absorbed.

Contrasted with these heavy metals are the alkalies, potassium, sodium and ammonium, whose salts are absorbed and excreted extremely rapidly. As a consequence they exert useful effects in the blood and are in addition valuable diuretics. Then, again, the salts of some acids are taken up much quicker than others. For example, chlorides and nitrates are quickly absorbed, sulphates slowly, and consequently the former are the better diuretics, the latter the better purgatives, as explained in the case of magnesium sulphate.

But, if the absorption of different drugs varies greatly, no less does their affinity. Every drug has its own special affinities, chloroform and tetano-toxin for nerve-tissue; the iodides for most cells, but especially gland-cells; carbon monoxide, caffeine, potassium chlorate, and iron for red corpuscles; and it is this selective power which determines the effects of the drug.

Sometimes a drug has very little affinity for any of the body cells—it gets into the blood and is then quickly excreted, but it may act with good effect during excretion. As examples we may take the volatile oils, which act perhaps chiefly in the kidneys and lungs, and in addition cause a temporary leucocytosis in the blood.

Besides this selective power for the various tissues drugs may also show a similar selective affinity for bacteria. Bacteria, which are vegetable cells, are killed by very similar agents to those which kill animal cells, *e.g.*, the common protoplasmic poisons, such as carbolic acid; but usually a vegetable cell is more resistant than an animal cell. Therefore an agent is sufficient concentration to kill all the vegetable bacterial cells will kill the animal cells in contact with them. Thus, if an antiseptic were put into the blood stream in sufficient strength (concentration) to kill any or all organisms (bacteria) which may have invaded the tissues, it would

kill the animal cells and the animal host. This is the reason why a general internal antiseptic drug is impossible.

Potassium iodide, for example, is often given, and is believed in, but in many cases must be useless, because it has no special affinity for the organism causing the disease, and is not sufficiently concentrated to act as an antiseptic. Similarly carbolic acid given by the mouth or subcutaneously is only useful where it is applied sufficiently concentrated, *i.e.*, in the stomach and intestines to lessen fermentation, and in the substance of the skin, as in follicular mange.

Of the effects of drugs it may be briefly said that they depend almost altogether upon their absorption and special affinity. In general the effects on the cells with which they combine may be: (1) to stimulate their special functional activity, *e.g.*, a vegetable bitter applied to the nerves of taste, or ergot on involuntary muscle fibres; (2) to depress their function, *e.g.*, quinine preventing the movement of leucocytes, or alcohol lengthening the time required for nervous reflexes; or (3) to poison the cells, as in the case of protoplasmic poisons, such as phenol, or the various caustics.

Use of Drugs.

But now, after this general description of the field open to treatment by means of drugs, it will be well to come to concrete examples of their legitimate use in the fight against disease. Let us consider first the condition known as fever.

What is fever? For our present purpose it may be defined as a poisoning of the system by (usually) the toxins of bacteria and evidenced by a series of symptoms, one of the chief of which is rise of temperature. The question at once suggests itself, Is this rise of temperature advantageous or detrimental to an animal attacked by some bacterial disease? The answer will be arrived at if we consider the effects of a local infection with organisms, say by inoculation through the skin. Here all the phenomena of inflammation of the part are produced, and we now look upon this inflammation as a defensive and salutary reaction on the part of the infected tissue. Apply this analogy to a case of fever, we may say that fever is simply a generalised inflammation or a systemic reaction having for its object the defence of the body against the invading bacteria. Is the sole aim of treatment in such a case to reduce the temperature? Surely the answer is No! for the high temperature is the best index as to the degree of infection, and the degree of reaction on the part of the body. The treatment must rather aim at (1) destroying or neutralising the poison (including in that term the organisms producing the actual toxins); (2) eliminating that already in the system by promoting its excretion; and (3) neutalising its dangerous effects on the vital organs and centres, or in other words keeping up the vitality until (1) and (2) can be accomplished. With this aim in view, what drugs can be used?

Consider first that very valuable, and at the same time somewhat expensive, agent quinine. What are its actions? We know that in the mouth it is a very useful bitter tonic, stimulating the nerves of taste, promoting appetite, and reflexly increasing gastric secretion and ingestion. Further, after absorption into the blood-stream, it acts in just the same way as it may be shown to do *in vitro*, namely, it inhibits the movement and activity of cells, including diapedesis of the leucocytes. Lastly, by an extension of this same depression of the functional activity and metabolism of cells it lessens heat formation and so tends to lower temperature. On the causal parasite of human malaria it has a specially destructive effect, and for that condition it is invaluable, but in most other diseases the only valuable effect of quinine is produced by its action on the nerves of taste when given by the mouth. In practice as a matter of fact these most useful properties of quinine are in many cases not taken advantage of, for to the horse it is given as a ball and to the dog as a pill. In my opinion, quinine if given at all, say to a dog with distemper, should be given in acid solution, and even then in small doses, as a bitter tonic. Its other actions, especially on leucocytes, are rather disadvantageous than helpful.

But what of the antipyretics, such as antifebrin, phenacetin, salicin, etc.? Here the chief action after absorption is on the heat-governing centres in the brain, and, as a result, there is a loss of heat by sweating, and by dilatation of the skin vessels. The temperature is certainly lowered, but the animal has as a consequence lost force and energy, and to some extent the whole system has been depressed, with very doubtful benefit, for no attempt has been made to get rid of or neutralise the poison. It may be at once admitted that in cases of hyperpyrexia, where the temperature, *per se*, is so high as to appear likely to produce heat rigor and death, an antipyretic, together with cold baths and ice packs, is absolutely indicated, but in the general case of fever it appears very questionable whether its use is of advantage to the patient.

But if bacteria are the cause of the fever and their destruction the real object of treatment, why not employ an internal antiseptic? I have already discussed the question of a general internal antiseptic, and have pointed out that although the iodides—notably potassium iodide—are extremely valuable when dealing with certain definite organisms, they cannot be applied to every case, or even the majority, for failing a specific affinity for, and a destructive effect in minute doses against, the organism in question, the iodides cannot be given in sufficient concentration in the blood to be able to account for organisms all and sundry.

Thus, despairing of finding any one agent of use in all cases, we must rather attempt to find a specific for each disease with which we have to deal. Of these so-called specifics we have a limited number at present, although if we include under that term the various antitoxins and vaccines the number is constantly increasing and may be expected to continue to do so. As examples of specific action may be mentioned the effect of potassium iodide in actinomycosis and botriomycosis; mercury and iodides in syphilis of man; sodium salicylate in acute rheumatism; thyroid extract in myxœdema; and, lastly, the specific antisera and vaccines against various organisms. As I have said, there is every reason to hope that the number of specific antisera and vaccines will largely increase as the whole subject of immunity is better understood, but among the ordinary drugs the number of specifics is very small.

And now having brought down the limits of the useful employment of drugs to what may seem to be a very narrow compass by this destructive criticism, let us review the field and ask ourselves what drugs we shall use, and under what circumstances and with what objects. And firstly, we shall all agree that in any disease for which a specific has been found, that agent will be the first one to use. In actinomycosis, for example, we at once turn to potassium iodide. Failing a specific, if the disease is due to bacteria, an antiseptic will naturally suggest itself wherever it is applicable. In the stomach, and, to a less extent, in the intestines, antiseptics may exert valuable effects in killing off pathogenic organisms. Also in the bronchial tubes, and, to some extent, in the lung alveoli, the inhalation of a volatile agent like vapourised iodine, or the excretion of the votatile oils and balsams are of value. Again, we may effect an antiseptic action in the kidneys and bladder by the excretion of antiseptic volatile oils, and of synthetic agents such as urotropin, which give rise to antiseptic constituents on decomposition during excretion. Other agents are excreted by the sweat glands of the skin, and act there in a similar fashion—for example,

arsenic. And here it may not be out of place to remark that an antiseptic action, however necessary and advisable it may be for getting rid of and inhibiting the growth of organisms, is always attended with some destruction of the tissue cells of the part. Parlicularly it is necessary to remember this when performing surgical operations on the smaller animals. For septic and accidental wounds an antiseptic must be used, and short of producing general toxic symptoms the destructive effects on the tissues are negligible. But for wounds made by the surgeon, where the tissues are not infected, asepsis should be aimed at, antiseptics should be used sparingly, if at all, and normal saline solution should be employed for irrigating and douching the tissues so that no destruction of cells takes place. Next in order of importance must come the classes of drugs which we may collectively speak of as excretories—purgatives, diuretics, and diaphoretics. Their use is of the very highest importance, and their applications almost unlimited. An apt illustration of their beneficial effects was suggested to me when contrasting two pictures of some native towns on the Panama Canal *before* the American (U.S.A.) occupation and *after*. Before, there was disease and a high death rate; afterwards comparative health and a low death-rate—and the reason? —simply an efficient system of drainage! In that community of cells, tissues, and organs we call the body, the need for rapid and efficient removal of waste products is just as important. Of all the excretories, purgatives are easily the most important, and it is common experience that the more one learns of practical medicine the more one appreciates the beneficial effects to all classes of patients and in almost all cases of a suitable purgative. There are few cases in which their use is contraindicated and usually then only when the patient is in an extremely weak state and unable to stand drastic treatment, or where the alimentary canal itself is the seat of acute disease. In almost all cases of non-parasitic skin diseases, in indigestion, in many cases of diarrhœa, where the cause is so often previous constipation with the retention of irritant toxic substances, in almost every case in the dog and in cattle, failing free action of the bowels when the case is seen, a purgative will benefit the animal. There is room for a wise discretion in the selection of the agent to be given; but whether it be the mild laxative in the form of oil, the hydragogue saline, the simple or medicated enema, or the drastic, such as croton or gamboge, these drugs as a class are among the first of the essentials.

Diuretics are also useful eliminatives, especially when we remember that most poisons absorbed into the system are excreted by the kidneys. They are, however, as a class much less frequently needed than the purgatives, and the choice of agents is small. The saline diuretics, where applicable, are among the most useful, examples being potassium nitrate and potassium acetate; also there are the volatile oils and resins which exert in addition their antiseptic effects. Again, caffeine and digitalis may be employed, although it must be remembered that the latter is only useful where the small excretion of urine is associated with cardiac disease, as, for example, in cases of dropsy and ascites in dogs affected with heart disease. Other things being equal, the agents which irritate the kidney cells to the smallest degree are to be preferred, and this a property possessed by the salines which act by bringing about a considerable degree of hydræmia by draining the tissues of water. Diaphoretics are of much less value as excretories, for in the first place the sweat is not primarily an excretion, nor is the skin an excretory organ primarily. Secondly, in some of our animals—the dog and cat notably—the distribution of sweat-glands is only over a very small area of skin. Diaphoretics in these animals have a very limited use, and even in the larger animals sweating is produced by drugs much less easily than in man. Agents of use as diaphoretics in man are therefore of more value in the lower animals for increasing skin circulation and promoting loss of heat than for causing excretion of waste products through the skin.

Speaking of loss of heat leads me to mention once more the use of antipyretics and febrifuges generally in those cases of high fever where the temperature alone will cause death if not speedily lowered. They are of infrequent occurrence in our animals, but require energetic treatment when they occur. The true antipyretics of the coal tar series—acetanilide (antifebrin) phenacetin, resorcin and salicin—are among the most valuable agents. These act on the heat-governing centres of the brain, and cause a loss of heat from the skin; they lower blood-pressure to some extent, and they have comparatively little further action. In addition, cold sponging and cold water packs are advisable, as affording the prompt lowering of temperature necessary, whilst the concentrated liquor ammoniæ acetatis provides a very useful and effective agent in many cases. The antipyretics, several of which are insoluble, are conveniently administered in electuary.

But now we have to consider another class of agents which are of the highest importance for keeping up the vitality of our patients when battling against disease. The term "stimulant" is often used of a drug in a wide sense, as though an agent could stimulate the animal organism generally and in all its parts and functions. This is erroneous and misleading, and it is necessary to carefully discover the point of action of each drug in order to secure the best results from its administration. Most of the functions of the body are under the control of the central nervous system, and there are a large number of drugs which may be used to stimulate the various parts of the nervous system, so increasing the functional activity of the organs controlled by the part stimulated. Very few agents, however, are found to stimulate all the parts of the central nervous system either simultaneously or to a uniform degree, rather do drugs appear to pick out or select special parts for their action. We may take as illustrations caffeine and cocaine, which both stimulate the cerebrum; caffeine, however, acting on the volitional and sensory side, whilst cocaine especially affects the motor centres. At the same time caffeine increases the activity and power of work of voluntary muscle and lessens fatigue, whereas cocaine paralyses sensory nerves. Contrasted with these agents alcohol, although often spoken of as *the* stimulant, is believed to depress from the first all the higher functions of the cerebrum, but since this latter acts as the controlling power over the more reflex and automatic centres in the medulla and spinal cord, the action of alcohol in moderate doses is to *take off the brake* and allow medulla and cord centres full play. Thus alcohol, whilst a sedative and depressant of the cerebrum, indirectly stimulates the lower centres. But this is not all, for alcohol given by the mouth to an animal with no acquired tolerance is a local irritant. As a consequence it stimulates the nerves of taste, the salivary and gastric secretions, circulatory activity in the stomach and peristalsis in the intestines, and so indirectly both the heart and respiration. Or take still another agent—strychnine—which acts chiefly by stimulating the centres of the medulla and spinal cord, without exerting much effect on the brain. In addition its bitter tonic effect in the mouth is of therapeutic value. Or again, we have that very valuable agent—digitalis—which especially stimulates the heart. These examples all illustrate the point before mentioned—that it is necessary to use the term stimulant with caution, and to explicitly state the part or organ stimulated. Again, most stimulants if given in excess become paralysants of the same organ they primarily stimulated. In practice, for emergency use, one would chiefly rely on three agents —ammonia by inhalation, alcohol by the mouth, and

strychnine hypodermically. For more prolonged use alcohol and strychnine are the most useful.

In a similar manner the term "sedative" is frequently applied in too general a sense. An agent may be a sedative locally and a stimulant centrally and *vice versa*. Atropine, for example, stimulates the medullary centres, the respiratory and vagus centres notably, but it paralyses vagus nerve-endings in the heart, so that the inhibitory action of the vagus is cut off and the heart beats faster. Again, this same drug depresses sensory nerve-endings and so is a local anodyne. Thus, it is clearly impossible to apply either of the terms "stimulant" or "sedative" to atropine without qualification. Then, too, in the case of opium we have an agent of mixed constitution, containing several alkaloids, each with a specific action; and, moreover, the action of the most important one—morphine—showing great variability when given to different species of animals. Thus in practice morphine is a most valuable drug as a narcotic and anæsthetic in the case of the dog, whilst in the cat it causes great excitement and even delirium. In the horse some practitioners use it as an anodyne in cases of colic, whilst others, so impressed by the restlessness and slight excitement it produces in this animal, have given up its use entirely. One common use of opium may be referred to, namely, its local application as an anodyne, in order to point out that all experimental work goes to show that it has no local effect at all on sensory nerves, but that its anodyne effects are only produced by its action on the brain after absorption. Thus opium lotions and fomentations are so much waste, so far as the drug is concerned, the hot water alone being of any use. For general purposes, to relieve excitement and delirium, one has a choice of several agents—in the dog, morphia, potassium bromide, or chloral hydrate, the latter being the most useful if the action is to be kept up for a period of several days. In the cat, morphia must be avoided. In the horse, chloral gives good results, as also does carefully tested and standardised cannabis indica; morphia is distinctly uncertain and therefore unsatisfactory.

And now these discursive remarks over a wide field must draw to a close. Their object is to suggest, to evoke discussion, to promote interchange of ideas, and to arrive at the results of experience. If these things be attained the writer will be well repaid.

The Prevention of Tuberculosis in Cattle, with Reference to the Communication of the Disease to Man.*

By James Niven, M.A., M.B., Medical Officer of Health, Manchester.

[Abstract.]

[After reviewing the recommendations of various Royal Commissions and other bodies on the prevention of tuberculosis, the writer outlined the steps taken in Manchester to deal with the disease.]

From 1896 onwards the cows within the city were examined by Mr. James King, M.R.C.V.S., with a view to see what was the extent of udder disease and of advanced tuberculosis generally, and samples from affected udders were submitted for examination to Prof. Delépine. In this way a knowledge was gradually built up of what could justly be required in respect of cows affected with tuberculosis of the udder, while a considerable number of highly tuberculous cows were removed from the cowsheds.

Attention was directed to the efforts of Mr. Busck in obtaining a pure milk supply for the city of Copenhagen. Briefly, the principles on which this work was carried on were that the farms from which milk was obtained should be the best procurable; that they should be under good veterinary supervision; that the milk should be cooled down to near freezing point directly after it was drawn from the cow; that it should be conveyed to the dairy in Copenhagen in refrigerating vans, tasted and tested, kept in ice, carefully freed by filtration from any residual dirt, and finally delivered to the consumer at a temperature but little above freezing point. The food of the cows was minutely regulated to ensure a good flavour. All this it was found possible to do, and to supply the milk at current prices. The conditions of milk supply and of service also were such that it was to the interest of the farmer and of the employees of the company to declare the existence of infectious disease on the farm or in their families. It seemed to the late Dr. Ashby and myself that a solution of the milk problem might be found on these lines, and in 1896 we visited Copenhagen and were kindly shown by Mr. Busck the details of his work, while we received his assistance in examining some of the farms supplying the company with milk. No more perfect organisation has ever come under my observation, and I can testify to the admirable quality and flavour of the milk sold in the dairies of the company. On our return we took steps to interest a number of gentlemen, and a company, entitled "The Manchester Pure Milk Supply Company," started business on exactly similar lines. Financially, the company was not a success, and the hopes entertained of eradicating tuberculosis from a number of farms in this district were dissipated when the company ceased to exist.

As the result of all the recent work on the subject, we stand now on much firmer ground when we assert that tuberculous cow's milk is instrumental in causing the infection of children with tubercle. But we are no more able than ever we were to affirm that the majority of infections in children are of bovine origin. It does, however, appear not improbable that bovine tuberculosis is a never-ceasing fountain of energy from which the diminishing intensity of human tuberculosis is recruited. It thus becomes a matter of the greatest importance how we are to attack the problem of averting the occurrence of infection from tuberculous milk. Without entering into detail it may be stated generally that, as a result of the administration of the model milk clauses in Manchester, a great diminution has occurred in the amount of tuberculous milk sent into the city, while the virulence of infection of such milk has been much reduced in intensity. In addition, largely owing to the skilful use made of his opportunities by the veterinary surgeon, Mr. Brittlebank, an immense improvement has occurred as regards cleanliness. But it is evident that only a certain measure of control can be attained by these means, and that complete freedom from tuberculous infection involves efforts far greater and measures more radical than any yet taken. Prof. Delépine, who has taken a large share in all the movements mentioned, arrived early at the conclusion that nothing short of complete eradication, with application of the tuberculin test, would suffice to remove bovine infection, and he formulated a scheme under which one area was to be declared after another, the animals within each successive area being tested and reacting animals eliminated. He has recently been able to apply his views to a particular herd, and arrived at the conclusion that elimination of tuberculosis might be effected in a milking herd without loss if the animals were not kept to an advanced age. Practically this is the policy pursued by cowkeepers having farms with the city of Manchester, although they do not apply the tuberculin test; but, of course, they do not produce calves.

We must ask ourselves the following questions:

1. Can we attain to substantial freedom from tuberculous infection without proceeding to the eradication of tuberculosis?

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* Paper read before the Section of Hygiene and Public Health, at Belfast meeting of the British Medical Association.

Complete freedom from tuberculous milk is only attained by the purchase of young selected animals, which are kept in milk for a year and then replaced. Supposing that, with Ostertag, we adopt the policy of removing from herds animals affected with tuberculosis so soon as their disease becomes plainly manifest to the clinician. If we confined ourselves to pulmonary disease we should find ourselves baffled by abdominal, renal, and uterine tuberculosis, and the clinician is driven to examinations of the various excretions for tubercle bacilli. These examinations are imperfect, and the occurrence of tubercle bacilli is uncertain and irregular. He is thrust back more and more on the tuberculin test. When he has availed himself of this aid, is he prepared to trust to his sagacity in keeping down tuberculous infection of the milk, and to recommend the consumption of milk derived from cows which he knows to be tuberculous? Segregation then becomes necessary. Such appears to be the process through which Ostertag's scheme for controlling tuberculosis in North Germany has been passing. The measure of success which it has attained has largely depended on the excellent cowsheds which have been erected. A cowshed is in truth a common lodging house for cattle, with circumstances that render it more dangerous than the worst of our common lodging houses, where tuberculosis reveals itself as a rapidly-spreading disease, which can only be held at bay by the most rigorous exclusion and constant vigilance of cleanliness.

The following experience, recorded by Bang (Denmark) in his communication to the International Veterinary Congress held at Budapest in 1905, is both valuable and striking in more respects than one:

"On a large farm, the stock of which contained tuberculous beasts, although to all appearance not in large numbers nor severely affected, yearly tests with tuberculin were made from 1891 onwards on all the young animals. The small number reacting were slaughtered, and the sound ones were kept isolated till they had calved, after which they were placed at one end of the common, large, well-ventilated cowshed. The new contingent was thus, year by year, absolutely healthy. Nevertheless, when in 1908 I got the owner to submit the whole of the herd, recruited in this manner, to the tuberculin test, 286 reacted and only 29 were healthy. The matter was then properly dealt with and the disease eliminated."

This experience shows the difficulty of arresting the spread of tuberculosis by any means short of absolute eradication.

Number of Cows Suffering from Tuberculosis of the Udder in Each Year and the Number of these which were Diagnosable Clinically as Suffering from Tuberculous Lesions other than Tuberculosis of the Udder.

	1901	1902	1903	1904	1905	1906	1907	Total
Number of cows proved to be suffering from tuberculosis of the udder.	14	31	28	16	31	30	28	178
Number of those in which tuberculosis was recognisable clinically without consideration of the udder condition.	9	20	12	6	6	7	5	65
Number in which tuberculosis was not recognisable clinically.	5	11	16	10	25	23	23	113

It might, however, be supposed that, without eradicating tuberculosis from the herd, or even preventing its spread, it would be possible to keep down the occurrence of tuberculosis of the udder, that is to say, of tuberculous milk, to trifling dimensions by removing plainly tuberculosed animals.

On this point we are able to throw some light from our own experience. The table above, prepared by our veterinary surgeon, Mr. Brittlebank, appears conclusively to disprove the reasonableness of such an expectation.

In face of these figures it appears impossible to maintain that the mere removal of animals diagnosed clinically as suffering from tuberculosis will suffice materially to reduce the quantity of tuberculous milk coming into the market.

2. What difficulties stand in the way of the eradication of tuberculosis, and is such a measure practicable?

It must be admitted that the difficulties are numerous and formidable. Taking milch cows alone: If we assume that some 30 per cent. are tuberculous, it is evident that any attempt to withdraw such a number suddenly from the herds of the country would create a milk famine, and that those who would suffer most would be the consumers. Then the housing arrangements are not such as to render a measure of this kind of any practical utility. The provision of suitable sanitary (sufficiently and easily cleaned) cowsheds is an absolute necessity of any such effort. Again, it is doubtful whether our farmers are prepared to give the constant care and labour necessary to carry out such an undertaking. Yet the whole success or failure of this measure rests with the farmers. No less vital is the equipment of the veterinary surgeons, to whom the conduct and supervision of these operations would be entrusted. It is manifest that the entire elimination of tuberculosis is a colossal task which must involve a large expenditure on buildings and in administration, and which, both for reasons of education and for economical reasons, must be spread over a considerable period of time.

3. Do the advantages of complete eradication outweigh the disadvantages?

What are the advantages? In the first place, a great source of loss to the agricultural interests of the country would be obliterated, but at a considerable cost in new buildings, expense in veterinary service, cost of tuberculin, and the initial cost to the farmer in the renovation of his herds. The farmer should, of course, pay his share, but the larger share of the expenses should be cheerfully borne by the country generally. The expenses of the veterinary service and the provision of tuberculin should come out of imperial funds, and the necessary tax should be borne by the whole of the community.

The second advantage of the complete eradication of tuberculosis would be that the dairying industry would be revolutionised; and the third advantage would be that a powerful impetus would be given to the consumption of milk as an article of food. The dairying industry would certainly increase greatly, and a larger population would settle on the land—a consummation desired by every well-wisher of his country. Our meat, also, which has been losing ground in the market, would obtain enhanced prices. Above all, many fine children would be saved to the nation; while it is even possible that a formidable blow would be struck at the permanence of tuberculosis in man.

The disadvantages may be summed up briefly as the difficulty in providing workable machinery. It seems evident that complete success in this enterprise is not to be obtained by voluntary action, and that it can only be secured by the joint forces of good government and reasonable assistance.

4. What are the measures required for the eradication of tuberculosis?

Last year, at the instance of Dr. Robertson, of Birmingham, a meeting of the authorities of large towns interested in this question was held in Manchester, at which a resolution was carried in favour of a thorough-going policy. Afterwards a deputation was received by Mr. Burns and Lord Carrington, at which the conclusions arrived at were placed before these Ministers. Later on the subject was brought before a well-attended meeting of the Lancashire Veterinary Association on April 2nd, 1908, and the members were unanimously in favour of the same view. There is, therefore, a growing force of educated opinion in favour of a radical policy. To carry it into effect, however, we require:

(*a*) A staff of independent and highly trained veterinary surgeons, who have specially studied the subject of bovine tuberculosis.

(*b*) Housing provision must be made. It is certain that unless means be found to interpose a sufficient distance or barrier between the reacting and non-reacting animals and all the services pertaining to them, the disease is liable to crop up in the sound herd and complete eradication to take longer time. It is to be desired, though not absolutely essential, that at the inception of this policy the central government should establish a number of farms at which the methods might be demonstrated and instruction given. It would answer equally well if this scheme was carried out through the county councils. Due regard would require to be had to the keeping of pigs near the buildings intended for the housing of sound stock, and to the storage of manure, so as absolutely to confine any infected manure in a restricted space. The veterinary inspectors should be appointed by the county councils, subject to the approval of the Local Government Board. The medical officer of health should be in constant touch with what is being done on the farms, and this end can only be secured be some official nexus. The veterinary surgeon would only in a sense be the subordinate of the medical officer of health. He would deal practically with all questions relating to the housing of cattle, the state of the dairies, water supply, etc.; but it would be essential for his own guidance that the medical officer of health should have cognizance of these matters. He cannot trace the relations of bovine to human tuberculosis unless he is able to follow closely the changes in progress. The simplest solution of the difficulties in regard to the central government is to make the medical and veterinary service one and indivisible. The veterinary inspectors should be paid out of imperial funds, as their services would be rendered both to the stock raiser and to the consumers of meat and milk.

In order to improve the housing of cattle a uniform code of regulations would be framed and made applicable to all the districts, the authorities of which would be required to survey the homesteads within their boundaries, to keep a register, and to classify the homesteads into three classes. Every milk dealer entering into a contract for the purchase of milk from a farmer would be entitled to receive from the sanitary authority a certificate showing the class of farm from which his milk was obtained, which certificate he should be obliged by law to produce on demand to the accredited officer of the sanitary district in which his milk was being sold. It would then be competent for the sanitary authority of the latter district to require compliance with the regulations before admitting the milk into their district. In this way pressure would be brought to bear on refractory authorities, without interfering more than was necessary with existing machinery.

If we could have our choice of the methods to be adopted we should begin by selecting farmers of known steadfastness and probity, put their farmsteads into an efficient condition, instruct them carefully in the precautions to be taken and the errors to be avoided, and then start them off with a clean stock on some adequate guarantee that they would carry out the measures prescribed.

Having thus established in a variety of centres the nuclei of healthy stocks we should add to the number of sound herds year by year. No herds would be declared free of infection which had not been purged under official supervision. Government aid would be given only to those farms scheduled for testing and grazing by the official veterinary inspector.

Precise instructions would be laid down, and the farmer would be bound to continue to carry them out after the first purgation had been completed. But in return the entire cost of the operation would be borne, in the first two or three years, by the Imperial Treasury, the official veterinary surgeon valuing the animals to be tested before the commencement of operations.

As the number of animals free from tuberculosis increased, a large number of farms would each year be brought under control, until at the end of, say, twenty years, there would be no tuberculous stock left.

Certain points require attention. Each animal tested would be registered, and marked in such a way as to distinguish those reacting from those not reacting.

As the number of farms dealt with each year increased rapidly, local veterinary snrgeons would acquire the necessary expertness in carrying out the test, and their services might be utilized by the administration. Tuberculin should be issued only by Government, and the sale or use of other tuberculin should be forbidden. The use of Government marks for tests not conducted under official supervision should be forbidden. In short, the proposal is that eradication should be compulsory, and spread over a number of years, and should be controlled and carried out under the official supervision of veterinary officers specially trained for the work, and specially instructed in all the attendant precautions required.

With regard to cowsheds, there can be no doubt that the provision of suitable housing for cows would do something to check the spread of bovine tuberculosis. There are many cowsheds so defective that they must contribute to the spread of the disease. There is, however, an intermediate class in which, if due provision is made for ventilation and cleanliness, it would be possible to rest content with alterations short of the full requirements, until the period arrived at which eradication of tuberculosis was to be effected.

It may be found possible to mitigate in various ways the expense contemplated in these proceedings; for example, it might be possible to make provision in open sheds for the housing of reacting animals not severely affected, at a distance from the homestead.

The proposals put forward may now be summarised:

1. The country to lend money at a low rate of interest to landowners, on sufficient security, to enable them to carry out necessary works of construction or reconstruction.

2. The country as a whole to provide the veterinary staff required and the tuberculin, as well as to make good losses involved in the first instance in eliminating tuberculosis from herds.

3. The maintenance of non-tuberculous herds to be compulsory, and the cost of any renewal of stock to fall on the farmer.

4. In return for their contribution to the agricultural insterest, consuming communities should have rights of control over the production of milk which they consume.

5. Milk dealers in entering into contracts should be obliged to satisfy themselves that their milk is produced under reasonably healthy conditions.

There is no power stronger than education. Ur-

ban communities should be educated to demand non-tuberculous milk by the diffusion of pamphlets and by lectures. Farmers should be educated by frequent discussions, lectures, and pamphlets.

The objects to be attained are of the first order, namely, to prevent infection, to extend the consumption of milk, and to render the stock-raising and dairy industries more prosperous. We have considered the difficulties. But are they less under any other plan?

In my opinion no proposal, which has not for its declared aim the extirpation of bovine tuberculosis contains that element of ultimate profit which justifies large present sacrifices. It may be that other ways of reaching this goal will be opened out. It may also be that the Order recently issued tends towards this end. But a clear declaration of purpose is eminently to be desired. —*British Medical Journal.*

PARLIAMENTARY.

In the House of Lords, Monday, Sept. 27.

Trade in Worn-out Horses.

The Earl of Mayo asked his Majesty's Government when the return relating to the export of decrepit horses, which was ordered by the House of Lords on July 29, would be available.

Earl Carrington said that in obedience to the order of the House he had done his best to get the information asked for. He was sorry to say that he found on inquiry that the particulars that had been kept by the Customs in the past did not enable them to give the information, and he hoped the noble earl would agree to the discharge of the order for the return. He quite agreed, however, that more complete records should be kept in future both by the Customs and the local authorities, and the Board of Agriculture were in communication with the Customs with a view to arrangements being made for that purpose. Perhaps he might be allowed to say a few words as to what had been done to improve the character of this traffic since the order was made in July. He then said that a special veterinary inspector would be appointed, and that was done the same week. (Hear, hear.) The inspector had visited every port in the country from which old horses were exported, and he had had interviews with the local authorities concerned with the administration of the Exportation of Horses Order. He had made trips to the Continent in vessels carrying horses, and had visited the ports of Amsterdam, Rotterdam, Antwerp, and Ghent, and had made inquiries at Brussels as to horses sent there from the two last-named ports. He had interviewed the owners, or their representatives, of vessels engaged in the trade, and had also visited the collecting centres in this country, and had interviewed representatives of the railway companies which carried horses to the ports of embarkation. Representations had also been made by the Home Secretary and the Secretary for Scotland to the local authorities concerned with the administration by the police of the Exportation of Horses Order. There is now more efficient veterinary inspection of horses before shipment, and the administration of local authorities is more active. The shipping companies had issued instructions to their masters of vessels ensuring the slaughter of any injured horse or of any horse which was not fit to complete the voyage; humane killers were supplied to vessels carrying horses, and arrangements had been made for more suitable and systematic watering and feeding, both prior to shipment and during the voyage. He trusted and believed the steps which had been taken would prove sufficient; if not, he would certainly ask for further powers, which he felt sure both Houses would grant him without hesitation.

The Earl of Mayo agreed to the order for the return being now discharged.—*The Times.*

DISEASES OF ANIMALS ACTS 1894 TO 1903, SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Parasitic Mange	Sheep Scab.	Swine Fever.	
		Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks.	Outbreaks	Outbreaks.	Slaughtered *
Gt. BRITAIN. Week ended Sep. 25		31	34			15	39		2	15	201
Corresponding week in	1908 ...	17	22			22	47		4	41	260
	1907 ...	22	24			12	29		1	35	170
	1906 ...	14	15			24	45		...	17	129
Total for 39 weeks, 1909		989	1311			425	1514		476	1323	11984
Corresponding period in	1908 ...	820	1092	3	112	635	1932		647	1593	9400
	1907 ...	828	1094			667	1525		421	1961	9212
	1906 ...	671	972			825	1549		307	848	4809

Board of Agriculture and Fisheries, Sep. 28, 1909.

IRELAND. Week ended Sept. 18		1	1	...	...	...	...	...	...	1	6
Corresponding Week in	1908 ...	1	1	...	...	...	...	1	...	1	163
	1907 ...	...	...	...	...	...	...	1	3	2	74
	1906 ...	...	...	...	...	...	...	1	3	1	26
Total for 38 weeks, 1909		6	6	...	...	...	...	67	307	86	1505
Corresponding period in	1908 ...	7	10	...	...	...	...	32	277	141	3247
	1907 ...	2	4	...	...	5	9	65	195	118	2041
	1906 ...	3	7	...	...	6	14	69	167	81	912

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sept. 22, 1909.

Note.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Dourine in India.

The Legislative Council met on Friday morning, Aug. 27th, at the Viceregal Lodge, the Viceroy presiding.

The Hon. Mr. Miller introduced the Bill to deal with Dourine. Its existence was first brought to the notice of Government in 1903, and as it was reported to constitute a serious menace to horse breeding in India precautionary measures were at once taken, especially in northern India. Later on reports from the Civil Veterinary Department were presented on which Government decided it was necessary to legislate.

The Bill has been drawn up on the model of the Glanders and Farcy Act of 1899. It is permissive in character, and allows the widest discretion to Local Governments as regards the registration of stallions. Dourine cannot be diagnosed except by Bacteriological examination, and the co-operation of horse-owners is enlisted as far as possible, and liberal provision is made for compensation when necessary.

In Europe and America it has been necessary to introduce stringent restrictions to check the disease, but it is only in recent years that its existence in India has been definitely established. In 1903 the question of adopting measures to prevent its spreading was brought before the Government and it was proposed to schedule the disease under the Glanders and Farcy Act. This could not, however, be done, as Dourine though dangerous is a contagious and not an epidemic disease within the meaning of section 2 of that Act. It was also considered advisable that further enquiries should be made before any legislation was introduced, and an investigation was accordingly conducted in 1905 in the Punjab and the Western Districts of the United Provinces by Colonel Pease, who was then Principal of the Lahore Veterinary College and whose authority is well known. The investigations showed conclusively that the disease existed in various parts of those provinces, that it had been the cause of much loss of valuable animals, and that it threatened seriously to affect the success of horse breeding. Enquiries have since been made in other parts of the country and these have fortunately shown that the existence of the disease has not as yet been detected in most other provinces. It is, however, of so serious a character as to make it necessary to have legislative power to deal with it in any local areas where it may be found to exist, and a draft Bill was accordingly prepared. It is purely a permissive measure, and does not come into force except in areas in which a local government may think it necessary to direct that it should be applied.—*The Empire* (Simla).

OBITUARY.

THOMAS AITKEN DOLLAR, M.R.C.V.S., New Bond St., London, W. 1851, Graduated, Edin: Jan. 1880.

In Memoriam.

A most familiar figure has been removed from our midst, and one whose memory will long remain green with us.

Thomas A. Dollar was well worthy to be called a friend, no man showed more sympathy in joy or sorrow; a hard worker himself, he would at all times at inconvenience and expense, find time for sympathy for others, and spared no trouble in showing it. Although so good a friend, he was a somewhat implacable foe, and some years ago had many a tussle with conflicting powers, but by sheer uncompromising force of truth he lived down all ill-feeling, and for the last score of years scarce had an enemy, for, as he once said, "the spirit of personal dislike was dead in him." His sixty years of active and really genial life commands the greatest respect. H. D.

JAMES GRANT, M.R.C.V.S., 29 Upper Warwick Street, Liverpool. Edin: Dec., 1893.

Mr. Grant died on Sept. 27, at 104 Errol St., Liverpool, from pulmonary tuberculosis. Aged 40 years.

JOSEPH DARBYSHIRE, M.R.C.V.S., Kendal. New, Edin: April, 1878.

An inquest was held at Preston on the body of Joseph Darbyshire, aged 55, a veterinary surgeon, of Kirkland, Kendal, who committed suicide in the first-class waiting room at Butler Street Station, Preston, at midnight on Thurday, Sept. 23, by drinking a quantity of prussic acid. Mr. Darbyshire had been unable to follow his profession regularly through paralysis and rheumatism, which made him unable to use his hands.

Wm. Ignatius Darbyshire, a retired pawnbroker, of Southport, brother of the deceased man, said he had frequently sent his brother money. He sent him a cheque about the middle of July, and received in reply the following letter:—

"I am sorry to say that for the last three or four months I have not been able to earn salt, and as everything goes against me I am fairly at the point of distraction. I am in a perfect fix, and on the verge almost of destitution. Whenever one is hard up they take advantage of you."

The jury returned a verdict of suicide whilst of unsound mind, brought about by Mr. Darbyshire's circumstances.

Personal.

Mr. E. WALLIS HOARE, F.R.C.V.S., was unanimously elected President of the Munster Canine Association, at the inaugural meeting, held at the Imperial Hotel, Cork, on Saturday evening, Sept. 25.

ARMY VETERINARY SERVICE.

WAR OFFICE.

ARMY VETERINARY CORPS.

The undermentioned officers embarked at Southampton in Transport "Dongola" on 29th Sept. for India:—Major C. Rose, Captains M. St. G. Glasse and W. H. Nicol.

The following officers have been placed under orders to embark for India during the present trooping season for a tour of service in that country:—Majors F. Eassie and R. L. Cranford; Captains H. M. Lenox-Conyngham, W. A. Wood, R. C. Moore, and C. E. Steel.

Capt. W. B. Edwards on return from India has been posted to Brighton for temporary duty.

The following officers having completed a tour of Indian service will be brought home during the ensuing trooping season:—Captains E. P. Argyle, D. MacDonald, F. G. O'Rorke, T. A. Nicholas, and E. C. Allen.

Capt. J. R. Steevenson has been transferred from Woolwich to Bulford and appointed Officer Commanding the Sections at that station.

Capt. W. A. Jelbert has been transferred from Bulford to Woolwich.

Lieut. W. H. Simpson has been granted an extension of sick leave from India to 18th December, 1909; and Lieut. W. H. Walker to 15th November, 1909.

Lieut.-Col. A. F. Appleton, Principal Veterinary Officer, Northern Command, will embark for South Africa in Transport "Braemar Castle," on October 20th On arrival in that country he will take up the duties of Principal Veterinary Officer relieving Col. L. J. Blenkinsop, D.S.O., who will return to England.

Lieut. E. Hearne will also embark in the same ship for a tour of service in South Africa.

COMMUNICATIONS AND PAPERS RECEIVED.—Messrs. J. B. Manuel, H. Buckingham, Loudoun M. Douglas.

The Adelaide Stock and Station Journal, The Edinburgh Evening News, Cork Examiner.